

Investigation of Film and Mechanical Properties of Poly(Lactic Acid)

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Abstract : Food packaging is important for the food industry. Bioplastics have been used as food packaging materials. According to the European Bioplastics organization, bioplastics can be defined as plastics based on renewable resources (bio-based) or as plastics which are biodegradable and/or compostable. Poly(lactic acid) (PLA) has an industrial importance of bioplastic polymers. PLA is a family of biodegradable thermoplastic polyester made from renewable resources. It is produced by conversion of corn, or other carbohydrate sources, into dextrose, followed by fermentation into lactic acid through direct polycondensation of lactic acid monomers or through ring-opening polymerization of lactide. The processing possibilities of this transparent material are very wide, ranging from injection molding and extrusion over cast film extrusion to blow molding and thermoforming. In this study, PLA films were prepared by solution casting method. PLAs which are different molecular weights were plasticized with glycerol and the morphology of films was monitored by optical microscopy. Properties of mechanical and film of PLA were researched with the mechanical testing machine.

Keywords : biodegradable, bioplastics, morphology, solution casting, poly(lactic acid)

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